Amendments to the Claims

The listing of claims will replace all prior versions, and listings of claims in the application.

Claim 1. (Currently amended) A point-to-multipoint network interface for transferring data packets between a plurality of end user devices and a higher level node, wherein each of the data packets includes a destination address, comprising:

a plurality of ~~downstream~~ upstream receivers, wherein each of said plurality of ~~downstream~~ upstream receivers receives data packets from a respective one of the plurality of end user devices;

a multiplexer, wherein said multiplexer multiplexes said data packets received by said plurality of ~~downstream~~ upstream receivers into a first stream of data packets;

an upstream transmitter that transmits said first stream of data packets to the higher level node regardless of the destination address of said data packets in said first stream of data packets;

~~an upstream~~ a downstream receiver that receives a second stream of data packets from the higher level node;

a demultiplexer; and

a plurality of downstream transmitters;

wherein said demultiplexer demultiplexes said second stream of data packets into individual data packets and selectively provides each of said individual data packets to one of said plurality of downstream transmitters for transmission to a respective one of the plurality of end user devices; and

wherein at least one of said plurality of upstream receivers receives data packets from a particular one of the plurality of end user devices at a different rate than a rate at which one of said plurality of downstream transmitters transmits data packets to the particular one of the plurality of end user devices.

Claim 2. (Cancelled).

Claim 3. (Currently amended) The point-to-multipoint network interface of claim 1, wherein said multiplexer comprises:

a packet memory that stores said data packets received by said plurality of ~~downstream~~ upstream receivers; and

a header processor that arbitrates the storage of said data packets received by said plurality of ~~downstream~~ upstream receivers in said packet memory and controls the writing of said data packets stored in said packet memory to said upstream transmitter to generate said first stream of data packets.

Claim 4. (Original) The point-to-multipoint network interface of claim 3, wherein said header processor controls the writing of said data packets stored in said packet memory to said upstream transmitter by reading a priority tag from a header of each of said data packets stored in said packet memory and permitting data packets with a priority tag corresponding to a higher priority to be written to said upstream transmitter before data packets with a priority tag corresponding to a lower priority.

Claim 5. (Original) The point-to-multipoint network interface of claim 1, wherein said demultiplexer comprises:

a packet memory that stores individual data packets from said second stream of data packets;

a packet distributor that reads the destination address of each of said individual data packets stored in said packet memory and, based on the destination address of each of said individual data packets, selectively routes each of said individual data packets to one of said plurality of downstream transmitters for transmission to a respective one of the plurality of end user devices.

Claim 6. (Original) The point-to-multipoint network interface of claim 5, wherein said packet distributor maps the destination address of each of said individual data packets to a corresponding hardware address identifying one of the plurality of end user devices.

Claim 7. (Original) The point-to-multipoint network interface of claim 6, wherein said packet distributor comprises a memory that stores destination addresses and corresponding hardware addresses, and wherein said packet distributor utilizes said memory to map the destination address of each of said individual data packets to a corresponding hardware address.

Claim 8. (Original) The point-to-multipoint network interface of claim 1, wherein said demultiplexer comprises:

a packet memory that stores individual data packets from said second stream of data packets;

a header processor that reads a hardware address from the header of each of said individual data packets, and, based on the hardware address of each of said individual data packets, selectively controls said packet memory to output each of said individual data packets to one of said plurality of downstream transmitters for transmission to a respective one of the plurality of end user devices.

Claim 9. (Currently amended) The point-to-multipoint network interface of claim 1, further comprising:

a plurality of receive buffers coupled between said plurality of ~~downstream~~ upstream receivers and said multiplexer, wherein said plurality of receive buffers temporarily store said data packets received by said plurality of ~~downstream~~ upstream receivers prior to processing by said multiplexer; and

a plurality of transmit buffers coupled between said demultiplexer and said plurality of downstream transmitters, wherein said plurality of transmit buffers temporarily store said individual data packets prior to transmission of said individual data packets by said downstream transmitters.

Claim 10. (Currently amended) The point-to-multipoint network interface of claim 1, further comprising:

a receive buffer coupled between said ~~upstream~~ downstream receiver and said demultiplexer, wherein said receive buffer temporarily stores a portion of said second stream of data packets prior to processing by said demultiplexer; and

a transmit buffer coupled between said multiplexer and said upstream transmitter, wherein said transmit buffer temporarily stores a portion of said first stream of data packets prior to transmission by said upstream transmitter.

Claims 11-12. (Cancelled).

Claim 13. (Currently amended) A point-to-multipoint network interface for transferring data packets between a plurality of end user devices and a higher level node, wherein each of the data packets includes a destination address, comprising:

a plurality of ~~downstream~~ upstream receivers, wherein each of said plurality of ~~downstream~~ upstream receivers receives data packets from a respective one of the plurality of end user devices;

an upstream transmitter;

a multiplexer, wherein said multiplexer comprises a first packet memory that stores said data packets received by said plurality of ~~downstream~~ upstream receivers, and a header processor that arbitrates the storage of said data packets received by said plurality of ~~downstream~~ upstream receivers in said first packet memory and controls the writing of said data packets stored in said first packet memory to said upstream transmitter for transmission to the higher level node, such that said data packets stored in

said first packet memory are transmitted as a first stream of data packets regardless of the destination address of said data packets stored in said first packet memory;

~~an upstream~~ a downstream receiver that receives a second stream of data packets from the higher level node;

a plurality of downstream transmitters; and

a demultiplexer, wherein said demultiplexer comprises a second packet memory that stores individual data packets from said second stream of data packets, and a packet distributor that reads the destination address of each of said individual data packets stored in said packet memory and, based on the destination address of each of said individual data packets, selectively routes each of said individual data packets to one of said plurality of downstream transmitters for transmission to a respective one of the plurality of end user devices;

wherein at least one of said plurality of upstream receivers receives data packets from a particular one of the plurality of end user devices at a different rate than a rate at which one of said plurality of downstream transmitters transmits data packets to the particular one of the plurality of end user devices.

Claim 14-17. (Cancelled).

Claim 18. (Currently amended) A method for transferring data packets between a plurality of end user devices and a higher level node in a network, wherein each of the data packets includes a destination address, comprising:

receiving data packets from the plurality of end user devices;

multiplexing said data packets received from the plurality of end user devices into a first stream of data packets;

transmitting said first stream of data packets to the higher level node, regardless of the destination address of said data packets in said first stream of data packets;

receiving a second stream of data packets from the higher level node;

demultiplexing said second stream of data packets into individual data packets; and

selectively transmitting each of said individual data packets to one of the plurality of end user devices;

wherein data packets are received from at least one of the plurality of end user devices at a different rate than individual data packets are selectively transmitted to said at least one of the plurality of end user devices.

Claim 19. (Cancelled).

Claim 20. (Original) The method of claim 18, wherein said multiplexing step comprises:

storing said data packets received from the end user devices in a packet memory;

reading a priority tag from a header of each of said data packets stored in said packet memory; and

permitting data packets with a priority tag corresponding to a higher priority to be transmitted to the higher level node before data packets with a priority tag corresponding to a lower priority.

Claim 21. (Original) The method of claim 18, wherein said demultiplexing step comprises:

storing individual data packets from said second stream of data packets in a packet memory;

reading the destination address from each of said individual data packets; and

based on the destination address of each of said individual data packets, selectively transmitting each of said individual data packets to one of the plurality of end user devices.

Claim 22. (Original) The method of claim 21, wherein said demultiplexing step further comprises:

mapping the destination address of each of said individual data packets to a corresponding hardware address identifying one of the plurality of end user devices.

Claim 23. (Original) The method of claim 18, wherein said demultiplexing step comprises:

storing individual data packets from said second stream of data packets in a packet memory;

reading a hardware address from the header of each of said individual data packets; and

based on the hardware address of each of said individual data packets, selectively transmitting each of said individual data packets to one of the plurality of end user devices.

Claim 24. (Cancelled).